

**UNITED STATES DEPARTMENT OF COMMERCE****Patent and Trademark Office**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/042,124 03/13/98 BISHAY

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EXAMINER

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ART UNIT	PAPER NUMBER
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2613

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**DATE MAILED:** 12/08/00

Please find below and/or attached an Office communication concerning this application or proceeding.

**Commissioner of Patents and Trademarks**

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/042,124	BISHAY ET AL.	
	Examiner	Art Unit	
	Allen Wong	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 25 September 2000.

2a) This action is **FINAL**.                            2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-22 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-5,9-17 and 19-21 is/are rejected.

7) Claim(s) 6-8,18 and 22 is/are objected to.

8) Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved.

12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

**Attachment(s)**

15) Notice of References Cited (PTO-892)

16) Notice of Draftsperson's Patent Drawing Review (PTO-948)

17) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.

18) Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_

19) Notice of Informal Patent Application (PTO-152)

20) Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

The new drawings have been received and the objection has been withdrawn.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1 and 12 have been fully read and considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 9-17 and 19-21 rejected under 35 U.S.C. 103(a) as being unpatentable over Hisada (5,537,231) and Balkanski (5,341,318) in view of Harvey (5,543,939).

Regarding claims 1, 4, 5, 12, 17 and 19, Hisada discloses a video compression method comprising the steps of:

performing the luminance (monochrome is luminance) (Y) domain compression of the video data on a line-by-line basis (run-length coding is on a line-by-line basis) without storing video data lines or video data frames (note in fig.4 that monochrome image, which is equivalent to luminance image data, is compressed by run-length coding scheme which is the same as line-by-line basis).

However, Hisada fails to disclose the limitation of performing the chrominance (Cr/Cb) domain averaging of the video data on a region-by-region basis without storing video data frames, wherein said Y and Cr/Cb domain compression steps are implemented in the digital solid-state imaging device hardware for real time link transmission of the compressed video data to the host computer. But Balkanski teaches the limitation of performing the chrominance (Cr/Cb) domain averaging of the video data on a region-by-region basis (col.13, lines 45-50; note the chrominance data is compressed by averaging the video information and that a 16 pixels by 8 pixels matrix is a region used in 4:2:2 format, thus Balkanski does teach the averaging of video data on a region-by-region basis) without storing video data frames, wherein said Y and Cr/Cb (U and V are equivalent to Cr/Cb since both are chrominance components) domain compression steps are implemented in the digital solid-state imaging device hardware for real time link transmission of the compressed video data to the host computer. It would have been obvious to one of ordinary skill in the art to combine the teachings of Hisada's luminance compression and Balkanski chrominance compression for compressing luminance and chrominance components effectively and inexpensively.

Although the combination of Hisada and Balkanski clearly teaches the compression of luminance and chrominance components, Hisada and Balkanski may not appear to teach the limitation of compression of luminance and chrominance data in a parallel structure. However, Harvey teaches in figure 2 that the luminance chrominance components can be separated with element 11 and into element 13, the chrominance and element 20, the luminance component. Therefore, it would have been

obvious to one of ordinary skill in the art to combine the respective teachings of Harvey's luminance/chrominance separator into Hisada and Balkanski's system for allowing parallel decoding operation of luminance and chrominance components in order to encode in an accurate and highly efficient manner while simultaneously preserving high image quality. Conceptually, the idea of separating luminance and chrominance components is well known in the art, especially when dealing with digital video compression systems, for splitting tasks to allow efficient compression to conserve time and retain superior image quality.

Regarding claims 2, 13, 14 and 20, it is obvious to use a bandwidth-limited USB bus since it is commonly used in today's computers for transmitting data in computer hardware.

Regarding claims 3, 15, 16 and 21, note that marking or tagging pixels is done by run-length encoding which inherently detects changes in luminance data on a pixel to pixel basis.

Regarding claims 9, it is obvious to select from a number of digital solid-state imaging devices for gathering and compressing video data even though Balkanski does disclose that digital scanners are used (col.1, line 43).

Regarding claims 10, note that run-length coding are concatenating or linking the code bits.

Regarding claims 11, since the chrominance components U and V are considered to be equivalent to Cr and Cb components, Balkanski discloses that the

chrominance components U and V are separated (note fig.3(2) shows that the U and V components are clearly distinguished and thus the U and V components are separated).

***Allowable Subject Matter***

Claims 6-8, 18 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the specific limitations as disclosed in claims 6-8, 18 and 22 are deemed to be patentable because it distinctly defines the invention.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen Wong whose telephone number is (703) 306-5978. The examiner can normally be reached on Mondays to Thursdays from 9-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on (703) 305-4856.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

AW  
December 1, 2000

  
CHRIS KELLEY  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600